

Automated Analysis of Imaging Based Experiments, Phase I

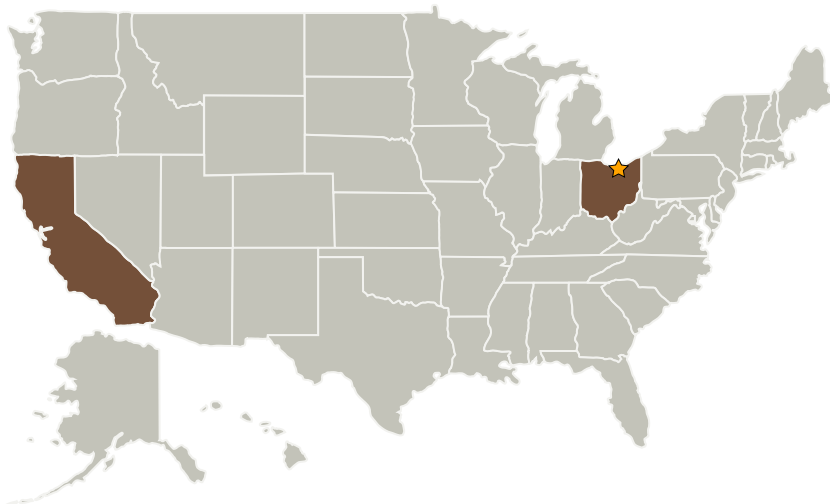
Completed Technology Project (2008 - 2008)



Project Introduction

For many applications involving liquid injection, the ability to predict the details of the breakup process is often limited due to the complexity of the two-phase phenomena. Likewise, the ability to experimentally characterize these phenomena is also limited due in part to the need to rely upon visualization tools which are inherently qualitative. As a result, the ability to validate predictions using these diagnostic tools is also limited. In recent years, visualization diagnostics have evolved substantially in terms of spatial and temporal resolution. The advancements, coupled with a tool to conveniently quantify the results obtained relative to the breakup process offer the potential for a marked increase in understanding of this phenomenon. The proposed effort will develop such a tool that will be applied initially to the problem of liquid injection into a crossflow. The typical characteristics associated with this type of liquid breakup, such as column flattening, bending, fracture point, dynamics, etc. will be automatically quantified using the tool proposed. The project will utilize existing results obtained with state-of-the-art high speed imaging.

Primary U.S. Work Locations and Key Partners



Automated Analysis of Imaging Based Experiments, Phase I

Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Project Management	2
Technology Areas	2

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Glenn Research Center (GRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Automated Analysis of Imaging Based Experiments, Phase I

Completed Technology Project (2008 - 2008)



Organizations Performing Work	Role	Type	Location
★ Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
Energy Plus Ltd.	Supporting Organization	Industry	Laguna Hills, California

Primary U.S. Work Locations	
California	Ohio

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Vincent Mcdonell

Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
 - └ TX11.5 Mission Architecture, Systems Analysis and Concept Development
 - └ TX11.5.2 Tools and Methodologies for Performing Systems Analysis